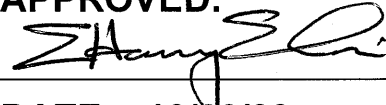


**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
WATER SYSTEM IMPROVEMENT PROGRAM
CONSTRUCTION MANAGEMENT PROCEDURES**

**SECTION: WSIP CONSTRUCTION
MANAGEMENT**

APPROVED:



**PROCEDURE NO.: 011
TITLE: CONSTRUCTION QUALITY
MANAGEMENT**

DATE: 10/20/09

REVISION NO.: 5

1.0 Policy

The Contractor is required to employ the means and methods and quality control necessary to achieve the contractual quality requirements. The Project CM Team monitors construction services and activities to assure that the Contractor is complying with the quality requirements of the Contract Documents. Quality audits and surveillances are conducted, by the CM Team of the Contractor's compliance with the Contractor Quality Plan. The Program CM will audit the Project CM Team's conformance with the Project QA Plan and Procedures.

Documentation of Construction Quality Management activities by the Contractor and the Project CM Team are to be maintained as a part of the project record.

This CM Procedure applies to all personnel working on the Water System Improvement Program (WSIP) to the extent that their Work is affected by these WSIP Construction Management (CM) Procedures and does not conflict with specific San Francisco Public Utilities Commission (SFPUC) policies or the Contract under which the Work is executed.

2.0 Description

This CM Procedure defines the requirements, tasks, sequence, and responsibilities for the planning, execution, and documentation of Construction Quality Management during WSIP Construction. This CM Procedure also describes how issues of deficiency or non-conformance will be managed and resolved.

The purpose of this CM Procedure is to establish a standardized Construction Quality Management process to be employed during WSIP Construction.

3.0 Definitions

3.1 Contractor's Quality Control (CQC) Plan

Contractor's Quality Control (CQC) Plan is developed by the Contractor for submittal to the Project CM. The CQC Plan and implementing procedures define the quality control measures, procedures, and processes required to ensure that all work performed meets specified quality requirements, in accordance with Technical Specifications, Division 1, General Requirements, Section 01400, Quality Control.

3.1.1 Contractor shall additionally provide the necessary contractual notification of readiness for, and safe access to the work areas for the "Structural Tests and Special Inspections" as required to be carried out by the SFPUC in accordance the requirements of Chapter 17 of 2007 California Building Code (or most recently adopted version).

3.1.2 Contractor shall further note that in accordance with the requirements of the CBC 2007 Chapter 17, the referred to "Special Inspections" are "in addition to and not substitutes for" those measures made a part of the Quality Control obligations of the Contractor as part of the Contract with the SFPUC.

3.2 Corrective Action Report (CAR)

The CAR is one of two possible responses, by the Contractor, to the Quality Assurance Non-compliance Notice (QA NCN). A response must be transmitted to the Project CM within five (5) working days of the receipt of the QA NCN.

3.2.1 A CAR is one possible response that describes the corrective action the Contractor intends to take to correct the non-conforming work in accordance with CM Procedure No. 009, Non-compliance Notices – Quality.

3.2.2 The second response by the Contractor is to reject the QA NCN and provide an explanation for the rejection.

3.3 CQC Coordination Conference

A meeting conducted by the Project CM and the Contractor after the Pre-Construction Meeting and before start of construction to reach a mutual understanding of the Contractors' Quality Control Plan and the SFPUC's Quality Assurance Procedures.

3.4 Daily QA Inspection Report

The Daily QA Inspection Report is a report prepared by the QA Inspector(s) at the end of each work day or shift. The Report provides the daily record of observations of the Contractor's progress work activities,

conformance to the Contract requirements and significant events occurring at the work site.

3.5 Daily Quality Report

A report issued each work day by the Contractor to the Project CM that provides progress information, status, and results of all quality activities, and applicable test results.

3.6 Project Quality Assurance (QA) Plan

A Project-specific QA Plan prepared by the Project CM to address how the Project CM and CM Team will implement and execute the WSIP QA requirements and procedures for the project. The Project QA Plan shall address the minimum required subjects in accordance with Attachment 011 – 1.

3.7 Supplier Quality Surveillance (SQS) Plan

The SQS Plan is another component of Quality Management which is performed at the supplier, manufacturer or fabrication facility in accordance with CM Procedure No. 026, SQS Plan and Surveillance Process.

3.7.1 The SQS Plan is developed prior to purchase and furnish of equipment or material for the contract work by the City or Contractor. A typical SQS Quality Assurance Form is provided on Attachment 011 – 3.

3.8 Quality Assurance (QA)

Quality Assurance is the element of Quality Management that requires development and implementation of a system of processes and procedures that will enable the SFPUC WSIP Team to provide confidence that the products and work meet the quality requirements of the Contract Documents. Quality Assurance surveillance is conducted to verify conformance to specific contract or procedural requirements.

3.8.1 Quality Audits are components of Quality Assurance Plans. Quality Audits are performed at predefined time intervals and ensure the process has defined internal monitoring procedures for the work.

3.8.2 Another component of Quality Management is the Supplier Quality Surveillance (SQS) Plan implemented in accordance with CM Procedure No. 026, SQS Plan and Surveillance Process.

3.9 Quality Control (QC)

Quality Control is the element of Quality Management that requires development and implementation of a system of processes and procedures that will enable the Contractor to verify that the work as constructed conforms to the requirements of the Contract. The criteria for acceptance are based on the internal (Contractor's quality requirements) and external (contractual requirements).

3.10 Quality Deficiency

Quality Deficiency is defined as documentation, drawings, material, equipment or work not conforming to the specified requirements or procedures.

3.10.1 A Quality Deficiency should be communicated to the Contractor at the time it is observed and documented in the Daily Inspection Report.

3.11 Special Inspections – CM Role

As a part of the Quality Assurance requirements on the project, the CM Team for each of the projects will, in the preparation of the CM QA Plan, include the requirements for those “Special Inspections” which may be specifically required for the project(s) the CM is managing.

The intent of this Procedure and the requirement for the CM Team is to include the required Special Inspections as a part of the Quality Assurance Plan, which should consider and include the following requirements to be acceptable and successful:

3.11.1 Review the Structural Information sheets as part of the Structural Drawings for the project(s). The Structural Engineer has listed these Special Inspection requirements under the heading “Special Inspections”.

3.11.2 Determine the discipline, level of effort and whether the inspection(s) are periodic or continuous as defined by the code, and coordinate the performance period for the implementation in conjunction with the approved project(s) construction schedule.

3.11.3 Determine the availability of the type of resources necessary to carry out the “Special Inspections” for the particular project.

3.11.4 Include these requirements in the tabular and written portions of the CM QA Plan so that they are clearly identified for “Special Inspections”. If deemed necessary, include in the CM QA Plan a separate section labeled “Special Inspection Requirements”.

3.11.5 Ensure that a clear understanding exists with the Team that these “Special Inspections” are “in addition to” all other inspections which may be required to be carried out by the Contractor under the Quality Control Plan of the Contractor and indeed all other Quality Assurance measures carried out by the CM QA Team.

3.11.6 The performance of any Special Inspection by the Owner or designated Owner’s representative in no way relieves the CM and/or the Contractor from their respective contractual QA and QC responsibilities under the agreements.

3.11.7 The CM must prepare documentation of all Special Inspections, including test data, so they can be communicated to the Structural Engineer and to the WSIP Management Team.

3.12 Quality Non-Conformance Documentation

Quality Non-Conformance is a quality deficiency that the Contractor has not or can not correct within a reasonable period of time. Quality Non-Conformance requires written notice from the Project CM to the Contractor.

3.13 WSIP Construction Management Information System (CMIS)

The WSIP Construction Management Information System (CMIS) is an on-line management tool for the efficient transmittal, processing, collaboration, review, storage and retrieval of various documents generated during a construction project. Processing of Quality Management documents will utilize the WSIP CMIS. The CMIS is designed for the Contractor to enter the quality management document directly into the system, refer to Attachment 011 – 1.

4.0 Responsibilities

4.1 Construction Contractor

The Construction Contractor is responsible for providing the Work to meet all of the requirements of the Contract. The Construction Contractor is responsible for Quality Control and Material Testing (as required by the Contract), and for providing verification that the products and services meet these requirements.

4.2 Deputy Director of Construction (DDC)

The Deputy Director of Construction manages the Construction and Closeout Phases of all WSIP Projects.

4.2.1 The DDC can authorize third party participation for Supplier Quality Surveillance of Contractor's materials and equipment.

4.3 Deputy Director of Pre-Construction (DDPC)

The Deputy Director of Pre-Construction is responsible for identifying the WSIP Project-Specific QA resources to perform QA activities for City Furnished Materials and/or Equipment

4.3.1 The Deputy Director of Pre-Construction approves the draft SQS Plan for City furnished and Contractor provided items prepared by the SQS Manager.

4.4 Lead QA Inspector

The Lead QA Inspector assists the Project CM with planning for QA inspections and resources, assesses performance of the Contractor against the CQC Plan and the performance of the Project CM Team

against the Project QA Plan, reviews and compiles Daily QA Inspection Reports and monitors resolution and closeout of deficiencies and non-conformance.

4.5 Quality Assurance (QA) Inspectors

The QA Inspectors assure that the construction work is performed and completed in accordance with the Contract Documents; conduct periodic observation and inspection of the work, monitor Contractor's quality progress, and coordinate field sampling and verification testing for quality.

- 4.5.1 Various specialty discipline QA Inspectors will be assigned as needed for the specific work activities. Disciplines may include special inspection, civil, piping, welding, mechanical, coatings, electrical/ instrumentation, and process SCADA/ automation. QA Inspectors report to a Project Lead QA Inspector.
- 4.5.2 QA Inspectors are responsible for preparing Daily QA Inspection Reports and for entering data into the CMIS Daily QA Inspection Report module.
- 4.5.3 The QA Inspectors are NOT the independent third party SQS Surveillance personnel performing quality assurance services at the Vendor's fabrication facilities.

4.6 Project Construction Manager (Project CM)

The Project CM manages the construction contract; develops and administers the Project QA Plan to verify that the construction work is completed in conformance to the Contract Documents; and determines when contractual action is necessary against a Contractor. The Project CM is responsible as the single point of contact with the Contractor as the "City Representative" as defined by the Contract Documents.

4.7 Project Engineer (PE)

The Project Engineer oversees the development of the technical specifications and the quality requirements specified therein. The PE is also responsible for defining the quality requirements for vendors providing SFPUC purchased and furnished materials and equipment, the storage requirements, and the requirements for acceptance and verification by the Contractor.

- 4.6.1 The PE participates in final inspections, as requested by the Project CM, and serves as the primary point of contact with the Engineer(s) of Record for the project.

4.8 Regional Construction Manager (RCM)

The Regional CM manages the Project CM's. The Project CM's shall coordinate directly with the SQS Manager on Contractor provided items quality assurance issues.

4.9 Regional Project Manager (RPM)

The RPM manages the PM's and is the point of contact and coordination with the SQS Manager as designated by the WSIP DDPC for all City furnished pre-purchased materials and equipment issues.

4.10 Supplier Quality Surveillance (SQS) Manager

The SQS Manager is responsible for preparing the draft SQS Plan, managing and monitoring the activities and reports provided by the SQS Surveillance personnel. In accordance with CM Procedure No. 026, SQS Plan and Surveillance Process.

5.0 Implementation

5.1 Quality Plans

5.1.1 The Project CM is responsible for preparing a Project QA Plan for review and approval by the RCM and RPM. The Project QA Plan must address how the Project CM will verify Contractor compliance with the quality requirements of the contract and how the Project CM Team will comply with the WSIP CM Procedures and requirements. The Plan must be submitted sufficiently in advance of, but no later than fourteen (14) working days prior to the construction "Notice to Proceed" authorization to ensure it can be approved prior to work being performed.

5.1.2 The Contractor must submit the CQC Plan within ten (10) working days after "Notice to Proceed" authorization. The Plan will be reviewed and accepted or rejected by the Project CM. Acceptance is required before work can be performed by the Contractor. Typically, an interim sixty (60) day plan may be considered by the Project CM. (See Division 1, Section 01400 for Project-Specific Time Limit for Submittal.)

5.1.3 Ten (10) days after receipt of the CQC Plan, the Contractor is required to convene a Pre-Construction Quality Coordination meeting to discuss his/her Quality Program and to develop an understanding with the Project CM of the WSIP Quality Requirements and Procedures.

5.2 QA Inspection and Non- Compliances

5.2.1 QA Inspectors will provide quality assurance inspection of their respective portions of the work and prepare Daily QA Inspection Reports utilizing the WSIP Construction Management Information System (CMIS). The QA Inspectors will collect and organize test results, take progress digital images and record observations about the execution of the work. QA Inspectors are required to document

all quality deficiencies in the Daily QA Inspection Reports and notify the Contractor of same.

5.2.2 Deficiencies are noted in the Daily QA Inspection Report by the QA Inspector on the day they are observed. If the Contractor corrects the deficiency, the QA Inspector re-inspects the work, enters the results in a subsequent Daily QA Inspection Report and the Lead QA Inspector closes the Corrective Action Report and the Corrective Action Report Log in CMIS in accordance with CM Procedure No. 009, Non-Compliance Notices – Quality in accordance with CM Procedure No. 009.

5.2.3 When a deficiency is not corrected within a reasonable time or when it is expected that the progress of the work will be impacted, the Project CM will issue a Non-Compliance Notice (NCN) to the Contractor through the CMIS. A NCN records a breach of quality and as such is issued to the Contractor. The Contractor must respond with a Corrective Action Report or written rejection within five (5) working days. The proposed Corrective Action Report must be approved by the Project CM before implementation.

5.3 Materials Testing

The Contractor is required to perform materials testing to conform to the requirements of the Contract Documents and providing records of all tests to the Project CM. The QA Inspectors may perform periodic independent materials testing to verify the results by the Contractor or when systemic quality problems dictate independent testing is needed.

5.3.1 The type and frequency of verification testing will be defined in the Project QA Plan. In addition to regular testing, QA Inspectors must take care to assure the materials being installed are same as tested samples.

5.4 Verify Survey Control

The Contractor is required to perform survey control during construction and to provide records of all surveys to the Project CM. The Project CM may establish independent control monuments and shall conduct independent surveys to verify the Contractor's results in accordance with CM Procedure No. 018, Pre-Construction and Post-Construction Site Surveys.

5.5 Maintain Documentation and Records

5.5.1 Implementation of Quality Management requires the generation, maintenance, and consolidation of reports, documents and records of the actions taken to verify that the quality requirements are complied with and, where needed, corrective action is taken. Responsibility for the generation of these records lies primarily with the QA Inspectors, testing firms, and in-factory inspectors, with

support from the Lead QA Inspector and oversight by the Project CM.

5.5.2 Quality documentation includes the Contractor's quality plans and reports required by the Contract, and the plans and reports of QA inspections, testing and audits performed by the WSIP Team.

5.5.3 The Project CM is responsible for the maintenance of all project quality records and files, including results of quality audits and corrective actions.

5.6 City Furnished Pre-Purchased Materials and Equipment

Refer to Attachment 011-2, Simplified QA / SQS Coordination Flow Chart

5.6.1 Quality requirements for Vendors providing City furnished and pre-purchased materials and equipment will be defined by the Project Engineer in each Purchase Order. These requirements shall include site storage, acceptance inspection and verification by the Contractor in the construction contract specifications in accordance with CM Procedure No's. 017 and 026.

5.6.2 The PE is responsible for defining the requirements for the Quality Plan required from each supplier. The Deputy Director of Pre-Construction is responsible for identifying the necessary Supplier Quality Surveillance (SQS) personnel for quality assurance in accordance with contract technical specifications.

5.6.3 The DDPC approves the draft SQS Plan prepared by the SQS Manager. The SQS Plan will identify any pre-purchased materials or equipment, and any Contractor provided materials or equipment, that will require surveillance during facility fabrication and on-site delivery.

5.6.4 If independent third party Factory Acceptance Testing of City furnished materials or equipment is required, the DDPC and PE will define the scope and the requirements, and secure the resources.

5.6.5 The SQS Surveillance personnel will inspect the City Furnished Materials and/or Equipment materials and equipment at the Vendor's fabrication facility in accordance with the SQS Plan, and then prepares the SQS Report for the SQS Coordinator and SQS Manager.

5.6.6 The SQS Manager will transmit the SQS Report to the responsible Regional PM.

5.7 Conduct Quality Assurance Audits or Surveillance

Quality Assurance Audits or Surveillances are conducted to assess and document the status, adequacy, and effectiveness of the Contractor's CQC and the Project QA Plan. These QA Audits are planned and conducted on a scheduled or unscheduled basis.

6.0 Other Procedural Requirements

None

7.0 References

7.1 Technical Specifications

- No. 00700 General Conditions
- No. 00800 Supplementary Conditions
- No. 01300 Submittal Procedures
- No. 01400 Quality Control
- No. 01650 Shutdowns
- No. 01660 Test and Start-Up

7.2 CM Procedures

- No. 007 Daily QA Inspection Reports
- No. 009 Non-Compliance Notices – Quality
- No. 017 City Furnished Materials and/or Equipment
- No. 018 Pre-Construction and Post-Construction Site Surveys
- No. 022 System Shutdowns
- No. 026 SQS Plan and Surveillance Process
- No. 030 Project History, Lessons Learned
- No. 039 System Testing and Start-Up

7.3 Others

- WSIP Construction Management Plan
- Supplier Quality Surveillance (SQS) Plan (for each project)
- 2007 California Building Code, California Code of Regulations Title 24, Chapter 17 Structural Tests and Special Inspections

8.0 Attachments

- 011-1 QA Plan Guidelines – *Sample*
- 011-2 Simplified QA / SQS Coordination Flow Chart
- 011-3 Supplier Quality Surveillance Plan – *Sample*
- 011-4 Document Distribution List for CMP No. 011
- 011-5 Revision Control Log

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QA Plan Guidelines – *Sample*



<<<Insert Logo, graphic or picture (optional)>>>

<<<Insert) Region Name>>>

<<<Insert) Project Title>>>

<<<Insert) Project No. XXX>>>

WSIP
CONSTRUCTION MANAGEMENT
**QA Plan
Guidelines**

<<<Insert) Your Company Name>>>

<<<prepared by: Author Name>>>

Approved by: Approving Manager's Name>>>

<<<Insert) Date>>>

Revision No. <<<Number>>>

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QA Plan Guidelines – *Sample*

Generic “Sample” QA Plan Outline for CM Staff Use

CM QA Plan

In providing this Generic Guide and Sample we have included as an example of a CM QA Plan from a current WSIP Project as an aid in assembling the CM QA Plan for a particular project.

Construction Management Teams must recognize that they retain the responsibility to address and conform to the WSIP CM Plan and to the WSIP CM Procedures as well as the Project Contract Specifications in the submittal of the CM QA Plan with respect to the specific requirements of the project for which they are responsible.

The documents which are referred to in this document and its attachments are listed below for reference and should be used in the preparation of the required CM QA Plan:

- WSIP CM Plan Section 2.2.9 Quality.
- WSIP CM Procedures, Numbers 007, 009, 011, 017, 022, 026, 029, 030 and 039.
(Please note that Procedure Numbers 026 and 029 are currently being developed).
- Contract Technical Specification Sections 01300, 01400, 01650 and 01660 from Division 01.
- Contract Specification Numbers 00700 and 00800 from Division 00.

While the above specific sections of the WSIP CM Plan, WSIP CM Procedures and Contract Specification Sections are referred to and made a part of this guideline, it is required that the CM QA staff become familiar with the Technical Specifications of the project for which they have responsibility in order to deliver the best Quality Assurance process for the project.

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QA Plan Guidelines – *Sample*

Generic "Sample" QA Plan Outline for CM Staff Use

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7. Contract and Sub-Contractor Interface and Coordination
8. Control of Special Processes
9. Types and Frequency of Materials Testing
10. Control of Measuring and Testing Equipment
11. Control of Deficiencies and Non-Conformance
12. Quality Records /Test Data Control
13. Quality Reporting to the WSIP Construction Management Staff
14. Document City Furnished Materials and/or Equipment Turnover to Contractor

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QA Plan Guidelines – Sample

Generic "Sample" QA Plan Outline for CM Staff Use

SECTION 1:

Project Description and General Preamble

In this Section provide a general description of the Project including the project number and associated project information such as the name of the General Contractor and names of the Subcontractors associated with the project. The names of the Project Manager, the Construction Manager and Lead QA Inspector should be included here. The information provided in the CM QA Plan will guide the CM QA staff through the project allowing staff access to all project related documents for the execution of the QA functions as part of the overall Construction Management (CM) of the project and must provide in this plan a clear line of sight to the responsible parties with Authority for Quality Assurance.

This Section is also an opportunity to detail the relevant related sections of the Contract Documents which the QA staff requires knowledge of.

Examples of these sections are the sections on Shutdown and Test & Start-up as detailed in Specification Sections 01650 and 01660, respectively.

The WSIP CM Procedures No. 022 System Shutdowns and No. 039 System Testing and Start-up also provide additional information and guidance on the Shutdown and Start-up requirements for the Construction management QA staff.

SECTION 2:

Project Organization for the QA and Authority of QA Staff

In this Section provide the Quality Assurance Organization Chart for your project. In the chart provide the positions and the reporting structure for the organization positions. Please refer to the WSIP CM Procedures for the format to be used. Additionally, list the names of the personnel assigned to the various positions and disciplines as well as tasks to be performed and relationships with other CM Team Members.

Also in this Section it is necessary to provide the authority of the CM QA Team and more particularly the CM QA Lead Inspector. This Authority can be represented in words or graphically as part of the organization chart.

The reporting structure and Authority assigned should be developed to provide to the SFPUC the beginning of a sense of confidence in the QA staff's ability to connect with the Contractor's QC Program and to be effective in providing a vital part of the WSIP Quality Management Program through Quality Assurance. Without this Authority it will not be possible to develop this confidence no matter which personnel are assigned.

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QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

SECTION 3:

Field Quality Control Procedures

In order to provide the Assurance of Quality it is not enough to say what is going to be done but in addition must state how the various tasks will be carried out, when and at what frequency it will be carried out; furthermore it must be clear who is going to carry out the task involved. In other words, a clear procedure for the various aspects of the task to be performed must be provided. Generally this should be a straight forward process. However, in Quality Assurance it is important to have a clear and concise understanding of the Contractor's Quality Control Plan for the project as submitted by the Contractor under Specification Section 01400 of the Contract and as approved by the Engineer and the Construction Manager.

Furthermore, in this Section list the procedures to be used for each of the types of inspections /tests which are to be undertaken and attach the forms and/or report types which are expected to be completed in the QA process.

Refer to and include the activities as detailed in WSIP CM Procedures No. 007, 009, 011, 017 and 029 (when made available).

In addition, list those off site inspections (if any) which will be necessary for the project. (Note: the QA requirements for involvement in Special Inspections and Supplier Quality Surveillance (SQS) are detailed in Section 8; Control of Special Processes.

SECTION 4:

Quality Personnel Experience /Qualifications and/or Training

In this Section it is necessary to highlight the experience, qualifications, and/or training of the personnel assigned to the project. These personnel will be those named in the Construction Manager's proposal and/or Contract unless SFPUC permission was received for substitution of personnel.

Furthermore, list the tasks to be carried out by each member of the QA Team and this list should reference the disciplines and specification sections of the Contract document that each member will have responsibility for in the overall CM QA Plan.

In this Section, include updated resume information for the team members shown as part of the Construction Manager's QA Organization Chart.

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QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

Also, list as part of this Section any other duties that members of the QA Team have in relation to the project for which this QA Plan is submitted.

If there are members of the QA Team who are not on the project until later in the project it is important to make the approximate time frame known for the engagement of all QA Team Members on the Project. The project schedule should be used to forecast the timing of personnel arrival on the project.

SECTION 5:

Independent Materials Testing Firm(s) Qualifications

In this Section provide the qualifications of the independent firms /labs which have been /will be engaged for materials testing purposes.

For example you may have independent firms engaged for some or all of the following materials testing requirements:

- Division 02 Compaction Testing
- Division 03 Concrete Testing
- Division 05 Structural Welding /Bolting Tests
- Division 09 Coatings Testing Requirements
- Division 15 Mechanical Materials Tests on Welds
- Division 16 Electrical Cable and/or Equipment Tests

In each case of the use of outside Firms for independent testing of materials for construction, provide the qualifications /experience of the Firms to be engaged and that of the personnel to be engaged as part of the Firms.

In addition to the materials to be tested list the specific tests to be carried out by each of the Firms engaged.

Provide copies of the typical reports which the materials testing firms are expected to supply.

SECTION 6:

Quality Orientation Training of CM Site Personnel

In this Section detail the orientation program for Quality that will be presented to the Construction Management firm site personnel. This orientation is to include all of the Construction Management Firm’s staff and for integration purposes should additionally include the Contractor’s Quality Control Manager.

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QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

This orientation, correctly conducted, will assist the CM staff to understand the role of the QA staff and will further assist in delivering a quality project. This orientation is very much likened to a Safety Orientation with an emphasis on quality.

The orientation on Quality should include the following:

- What Quality Assurance steps will be taken by staff members and when.
- What is the frequency of inspections expected to be.
- What does QA Inspection consist of in relation to the CQC Plan presented by the Contractor’s compliance with Division 01, Specification 01400.
- The WSIP CM Plan Section 2.2.9 must be reviewed by the CM QA Lead Inspector in preparing the CM QA Plan and is a useful tool in providing the required site personnel orientation.
- How will the inspectors for Quality Assurance fit into the construction of the project and the interface with the overall project schedule.
- Those reporting requirements of the contract and of the WSIP CM Plan and the WSIP CM Procedures as listed above.
- The orientation should include the forms and report formats that will be used by the Construction Manager’s QA staff as part of the project QA program.
- The orientation should include a review and orientation of the CQC Plan submitted in accordance with Specification 01400 as approved by the CM so that the Entire CM staff has a familiarity of the requirements and obligations of the Contractor on Quality Control.

SECTION 7:

Contractor and Sub-Contractor Interface and Coordination

The Interface and Coordination of Contractor and Sub-Contractors is recognized as a critical aspect of Quality Management in Construction. Special emphasis is put on the Contractor /Sub-Contractor relationship in the Contract Documents including that detailed in the Contract General Conditions Specification 0700, 3.02. The QA staff should be familiar with this section of the general conditions for contractor /sub-contractor interface contractual requirements as it is detailed.

In this Section detail how the CM staff will stay familiar with the contractor /subcontractor relationships for the project (example; weekly/daily meeting, jobsite discussion, schedule updates, teleconferences, etc.).

Describe the contractor /sub-contractor Quality Control interfaces so that a firm knowledge of these interfaces is demonstrated for each craft /discipline involved in the project. It’s important for the QA staff to have a clear understanding of the scope of work for each of the contractor’s subcontractors for the purposes of providing that the Quality Assurance is carried out with an

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QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

understanding of who provided the quality control for the task and who actually did the work. By understanding who is the prime contractor and sub-contractor on the project the QA staff can deal with the correct party at the correct level of authority.

SECTION 8:

Control of Special Processes

Special processes in WSIP Contracts include among other things activities such as “Special Inspections”. These Special Inspections are detailed in the California Building Code (CBC) 2007, Chapter 17. The CBC as adopted by the City and County of San Francisco Building Department and referred to as the San Francisco Building Code lists Structural Inspections /Observations which must be carried out on construction projects. The Construction Manager’s Quality Assurance Group is to list the inspections and see that the inspections are carried out (the QA staff may perform these inspections) by the appropriate inspections group designated by the Owner/Engineer of Record.

Furthermore, and in addition to the above, the control of special processes will include the acknowledgement of and participation in the SFPUC Supplier Quality Surveillance (SQS) Program. The inspections/witness activities associated with this program are to be carried out by an independent third party team which will provide inspection of critical City supplied and Contractor Supplied Materials and Equipment (NOTE – whether or not SQS is applied to contractor supplied materials/equipment does not relieve the contractor of the overall responsibility to deliver all of the materials and/or equipment in strict conformance to the Contract Documents).

The procedure for the inspections to be carried out by the independent third party is detailed in WSIP CM Procedure No. 026, SQS Surveillance Report.

The CM has specific requirements related to the SQS Program as first line contact with the construction contractors in providing detailed information relating to the materials/equipment identified by SFPUC as being sufficiently important/strategic to warrant having SQS carried out for the Contract.

The information required is determined by the SFPUC working with the Independent Third Party SQS Manager and others. The required information is provided to the SQS Manager /Coordinator by the contractor through the CM and this special process as it relates to the Construction Manager’s QA staff should be described in this section of the QA Plan.

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QA Plan Guidelines – Sample

Generic "Sample" QA Plan Outline for CM Staff Use

SECTION 9:

Type and Frequency of Materials Testing

In this Section list the types of materials to be tested. Additionally list the tests to be carried out on these materials together with the personnel/Firms (if independent party tests are required). This list may be incomplete to begin the project and in that case it will be necessary to complete the list as the project progresses.

Along with the list of the tests to be performed, and as a part of the QA process list the frequency of these tests bearing in mind that the frequency can change over the course of the project if there are negative results on a repeating basis. The QA Plan should provide the guidelines for the QA test frequency adjustment.

Furthermore, list the specification sections associated with the materials testing for easily correlating the requirements with the specification(s) in the Contract Documents.

Provide in the section those forms necessary for the recording and tracking of the Materials Testing.

SECTION 10:

Control of Measuring or Testing Equipment

In this Section, detail the process, the personnel and/or the independent firms to be engaged in the CM QA Program, along with the types of Test Equipment and Tools to be used by these personnel/Firms in the course of their work.

Detail the process that assures the equipment used bears a record of recent calibration to a known device/instrument traceable to national standards.

Detail as a part of this Section how the test equipment/tools used as a part of the QA Program will be kept and/or stored (assigned storage cabinets, vendors' locations, offices, and/or independent firms). Further detail the frequency of calibration checks to be carried out on the equipment and specialized tools.

Also, as a part of this Section list any special tools or special handling that may be required for specific test equipment to be used on your project.

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Page 10 of 12
QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

SECTION 11:

Control of Deficiencies and Non-Conformance

In this Section refer specifically to the CQC Plan for the contract involved. Also, refer to the WSIP CM Procedures for guidance in providing your plan for controlling deficiencies and non-conformance. (WSIP CM Procedure No. 007 Daily QA Inspection Report, and WSIP CM Procedure No. 009 Non-Compliance Notice Quality for examples).

This Section is intended to detail the Construction Manager’s QA Plan to control these deficiencies and non-conformance issues.

For example: On a particular project there may be an unusually high frequency of rebar quality issues in QC or in QA reporting and the reason(s) may be different for each group. It could be as simple as the use of differing documents. Whatever the reason, it’s important to identify, communicate, meet, and solve the problem so that repeats are eliminated.

Detail the Construction Manager’s process for controlling these deficiencies through orientation of personnel with good practice, meeting with the contractor’s personnel, outside assistance, use of workshops, use of outside standards agencies, etc.

The QA staff must recognize that the reporting of Deficiencies and Non-Conformance items does not provide a control system for the reduction in the occurrence of these items and it is this process of reduction in occurrence that is to be described in this Section.

SECTION 12:

Quality Records /Test Data Control

In this Section, detail the Construction’s Manager QA Plan to control, file and preserve those records associated with the Quality aspects of the project.

Concomitantly detail how those reports, data, files, film, tape, disc and other media which may not easily be made part of the CMIS stored information will be kept as a critical part of the overall part of the project information.

Additionally provide detail specifically for your project as to how the Project Document Control Specialist will work with the QA Group of the Construction Manager to ensure there is no loss of critical information and/or Data. The QA staff should become familiar with WSIP CM Procedure No. 029 (upon availability).

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Page 11 of 12
QA Plan Guidelines – Sample

Generic “Sample” QA Plan Outline for CM Staff Use

SECTION 13:

Quality Reporting to the WSIP Construction Management Staff

In this Section provide detail of the methods and substance of the methods on Quality Assurance to provide that confidence necessary to the SFPUC that the Contract requirements are being met.

Specifically, there are WSIP CM Procedures which deal with the daily reporting requirements on quality for the submittal of information to CMIS. These requirements have been detailed in this guideline but it is also emphasized here that in the reporting process to WSIP Management it is important to recognize the value of “Lessons Learned” and to apply those Lessons Learned as the project moves forward and to report these “Lessons Learned” to WSIP Management so that the benefits may be shared on all of the WSIP Projects. Please refer to the WSIP CM Procedure No. 030, Project History - Lessons Learned for information to assist you in documenting and providing this important information for the management Team.

It is critical in this Section that the QA Team in addition to the daily reporting requirements target those actions or lack of actions which contribute most to the identified Quality issues. When viewed in that light it is equally critical that the QA Team Members be fully integrated with the Construction Manager and also have the confidence of the installation Contractors and Sub-Contractors while simultaneously being proactive in assisting with solutions to the problems which may exist on the project. By working through Quality Assurance in this manner a quality reporting structure will be built on the project.

Proactively engagement of the Quality Control Manager from the Contractor is recommended. Please stat how this is to be accomplished on the project.

SECTION 14:

Document City Furnished Materials and/or Equipment Turnover to Contractor

In this Section of the Construction Manager’s CM Plan detailing the transfer of City Furnished Material and/or Equipment please refer to WSIP CM Procedure No. 017, City Furnished Materials and/or Equipment Materials and Equipment; Attachment 017-1 for the detail on Roles & Responsibilities for this activity, and Attachment 017-2 for the transfer form to be executed for the transfer.

Furthermore, please note that while the material and/or equipment to be transferred was in the possession of the City, and where applicable and required by the vendor or supplier, an in storage maintenance program may have been implemented and executed to keep the equipment in a warrantable condition.

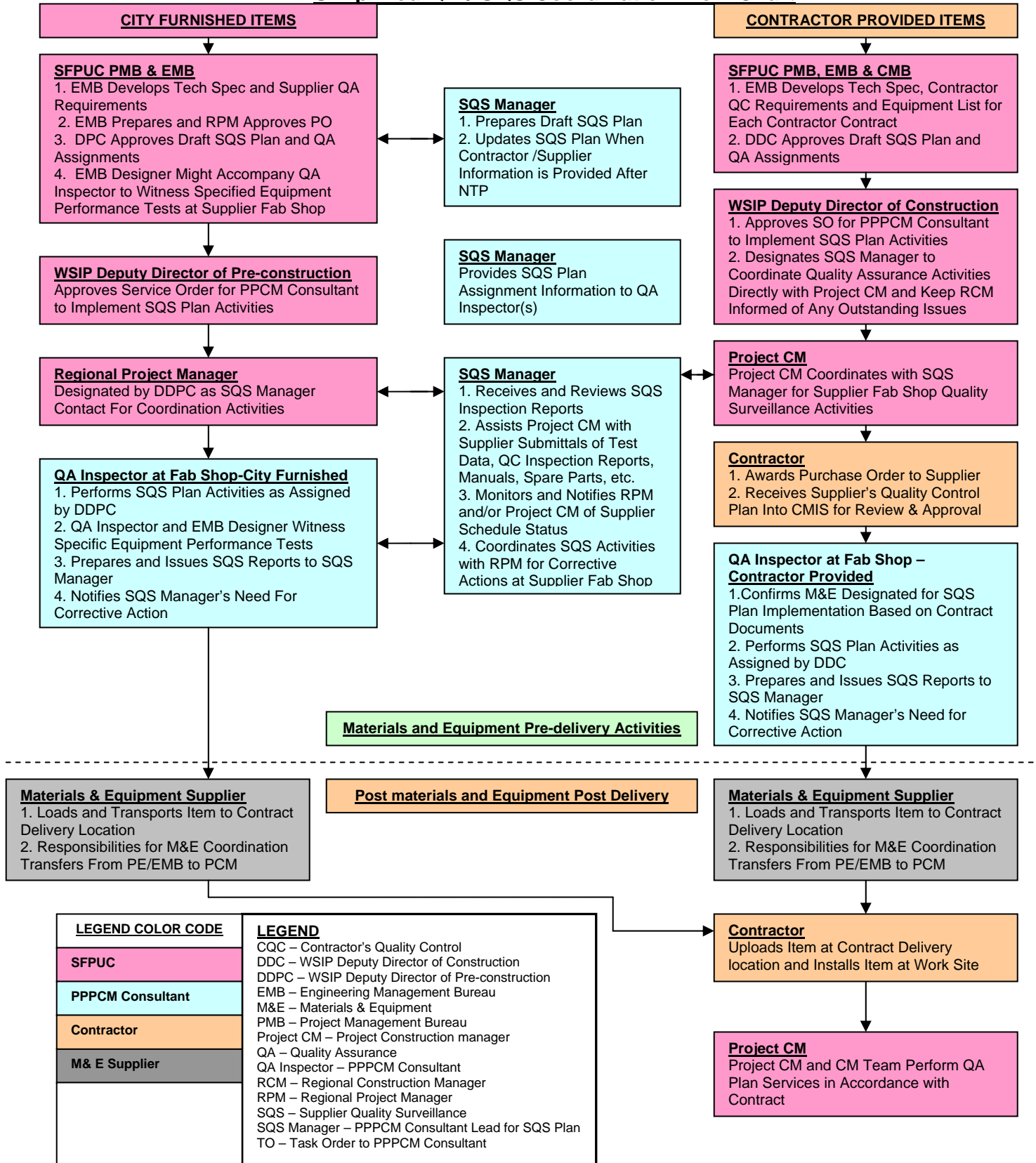
Attachment 011- 1
Page 12 of 12
QA Plan Guidelines – *Sample*

Generic “Sample” QA Plan Outline for CM Staff Use

Therefore the Construction Manager’s QA Team in this Section of the QA Plan will detail what the Contractor will do and with what staff, to maintain the program necessary to keep the City Furnished Materials and/or Equipment in a fully warrantable and safe condition ready for operation upon completion of the Contract in accordance with the Contract Documents. (Note; that the same degree of care, custody and control is required of Contractor Furnished Materials and/or Equipment).

End of Generic “Sample” QA Plan Outline for CM Staff Use.

Attachment 011- 2 Simplified QA / SQS Coordination Flow Chart



**WSIP
SUPPLIER QUALITY
SURVEILLANCE PLAN**

Date Prepared: 3-7-09
Date Updated: ----

	A	B	C	D	E	F	G	H	
1	Project Name:								
2	Contract or Purchase Order:								
3	Project Manager:								
4	Project Engineer								
5	SQS Plan approved:	<signature>				Harvey Elwin			
6	Date:					SQS Plan Updated:			
7									
8	Product:								
9	Vendor:					Vendor Location:			
10						Contact:			
11						Contact numbers:			
12									
13									
14									
15	QA REQUIREMENTS	REF.	Surveil- lance Y or N	Doc.	Date sched.	Date Complt.	SURVEILLANCE ASSIGNMENT/ORG.	NOTES	
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27							Name/ City and/or Engr.	number of trips based on number of manufacturers	

WSIP
SUPPLIER QUALITY
SURVEILLANCE PLAN

Date Prepared: 3-7-09
Date Updated: ----

	A	B	C	D	E	F	G	H
28								
29							<PPPCM QA inspector>	number of trips based on number of manufacturers
30								
31								
32								
33							Name/ City and/or Engr.	number of trips based on number of manufacturers
34								
35								
36								
37								
38	ESTIMATED BUDGET (Parsons)				Basis of Estimate			
39		qty	\$	Extension				
40	Number of trips							
41	Number of manhours							
42								
43	Total estimated budget							
44								
45								
46	Product:							
47	Vendor:					Vendor Location:		
48								
49						Contact:		

**WSIP
SUPPLIER QUALITY
SURVEILLANCE PLAN**

Date Prepared: 3-7-09
Date Updated: ---

	A	B	C	D	E	F	G	H				
50					Date sched.	Date Complet.	Contact numbers:					
51							REF.		Surveillance Y or N	Doc.	SURVEILLANCE ASSIGNMENT/ORG.	NOTES
52												
53												
54							<PPPCM QA inspector>	number of trips based on number of manufacturers				
55												
56												
57												
58												
59												
60												
61												
62							<PPPCM QA inspector> (Certified NACE Coatings Inspector)	number of trips based on number of manufacturers				
63							<PPPCM QA inspector>	number of trips based on number of manufacturers				
64												
65												
66												
67												
68												
69	ESTIMATED BUDGET (Parsons)						Basis of Estimate					
70		qty	\$	Extension			Manhours @ \$100/yr					
71	Number of trips						Trips @ \$300/trip					
72	Number of manhours											
73												
74												
75	Total estimated budget											
76												

**WSIP
SUPPLIER QUALITY
SURVEILLANCE PLAN**

Date Prepared: 3-7-09
Date Updated: ----

	A	B	C	D	E	F	G	H			
77											
78	Product:										
79	Vendor:				Vendor Location:						
80							Contact:				
81							Contact numbers:				
82					Date sched.	Date Complet.					
83											
84											
85	QA REQUIREMENTS	REF.	Surveillance	Doc.	Date sched.	Date Complet.	SURVEILLANCE ASSIGNMENT/ORG.	NOTES			
86			Y or N				<PPPCM QA inspector>	number of trips based on number of manufacturers			
87											
88											
89											
90											
91											
92											
93	ESTIMATED BUDGET (Parsons)				Basis of Estimate						
94		qty	\$	Extension	Manhours @ \$100/hr Trips @ \$300/trip						
95	Number of trips										
96	Number of manhours										
97											
98	Total estimated budget			\$0							
99											
101											
102	Total ESTIMATED BUDGET (Parsons)				Basis of Estimate						
103		qty	\$	Extension	Manhours @ \$100/hr Trips @ \$300/trip						
104	Number of trips										
105	Number of manhours										
106	TBD										
107	Total estimated budget			\$0							

Attachment 011- 4
Documents Distribution List for CMP No. 011

The following personnel listed (by project position or responsibility) for Documents Distribution is a general guideline for specific CM Procedure. It is the responsibility of the Administration /Document Control Specialist (ADCS) to confirm and as necessary revise this list as appropriate for the specific project needs. The Office Engineer shall approve these distribution changes.

The guidelines for hard copy document distribution is as follows:

1. Individuals, without CMIS access, who attended a specific project meeting.
2. Individual, without CMIS access, who was mentioned or designated for action in a specific project meeting.
3. Individual, without CMIS access, who has management oversight responsibilities to ensure the implementation or completion or project action.

REPORTS:

- Daily QA Inspection Reports
- Daily QA Reports
- Supplier Quality Surveillance (SQS) Reports

DISTRIBUTION:

Project Field Personnel – Information Only, Not Distribution

- Project CM, Lead QA Inspector, ADCS

Construction Management Bureau

- Regional CM

Program CM Consultant

- Program CM Consultant Advisor

Project Management Bureau

- Regional PM (SQS Reports only)

Engineering Management Bureau

- Regional PE (SQS Reports only)

**Attachment 011- 5
Revision Control Log**

Revision No.	Revision Date	What changed?
Rev 5	October 20, 2009	<ul style="list-style-type: none"> • Revised Attachment 1; Page 8 of 12 QA Plan Guidelines – Sample, Section 8 first paragraph was: <i>(the QA staff is not to...)</i> change: <i>(the QA staff may...)</i>
Rev 4	October 8, 2009	<ul style="list-style-type: none"> • Added new Section 3.1.2 • Added new Section 3.11; Special Inspections – CM Role • Renumbered Rev 3 of Section No. 3.11; now 3.12 Quality Non-Conformance Documentation • Renumbered Rev 3 of Section No. 3.12; now 3.13 WSIP Construction Management Information System (CMIS)
Rev 3	September 21, 2009	<ul style="list-style-type: none"> • Revised/Added new Attachment 1; QA Plan Guidelines – <i>Sample Format</i> • Section 7.0; added/new References and sections; 7.1, 7.2 and 7.3
Rev 2	August 11, 2009	<ul style="list-style-type: none"> • Added Section 3.12; CMIS Description • Section 4.10; updated SQS Manager • Section 7.0; added/new References • Added Attachment 4; Documents Distribution List • Added Attachment 5; Revision Control Log
Rev 1	May 4, 2009	<ul style="list-style-type: none"> • Revised Attachments
Rev 0	February 5, 2009	Signed